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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/494,670	01/31/2000	Mory Benoit	PHF-99.507	3768

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EXAMINER
AN, SHAWN S

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.		Applicant(s)	
Office Action Summary	09/494,670		BENOIT, MORY	
	Examiner		Art Unit	
	Shawn S. An		2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _01 April 2005_.
2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-21_ is/are pending in the application.
     4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-5,7,8,10,11 and 13-21_ is/are rejected.
7)☒ Claim(s) _6,9 and 12_ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
     a)☐ All   b)☐ Some * c)☐ None of:
       1.☐ Certified copies of the priority documents have been received.
       2.☐ Certified copies of the priority documents have been received in Application No. _____.
       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

1.   The request filed on 4/1/05 for a Request for Continued Examination (RCE)
under 37 CFR 1.114 based on parent Application No. 09/494,670 is acceptable and a
RCE has been established. An action on the RCE follows.

Response to Preliminary Amendment

2.   As per Applicant's instruction as filed on 4/1/05, claims 1-12 have been
amended, and claims 13-21 have been newly added.

Response to Remarks

3.   Applicant's arguments with respect to amended claims as above have been
carefully considered but are moot in view of the new ground(s) of rejection incorporating
the previously cited prior art references.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art
> are such that the subject matter as a whole would have been obvious at the time the invention was made to
> a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made.

5.   Claims 1, 5, 7-8, 10-11, and 13-21 are rejected under 35 U.S.C. 103(a) as being
unpatentable over Ahanger et al (SPIE Proceedings series, 1995) in view of Altunbasak
et al (6,389,168 B2).

Regarding claims 1 and 10, Ahanger et al discloses a descriptor, embodied
within a computer-readable medium (page 5, lines 4-12), wherein the descriptor being
configured to represent, from a video indexing view point, motions of a camera or any
kind of observer or observing device (abs.), wherein the descriptor being configured for

flexibility with respect to how many frames are to be retrieved from a database (page 3, lines 6-10), and, to cover the case of one frame configured to represent motion within any frame of a video sequence, and to cover the case of more than one frame, configured to represent any series comprised of a plurality of frames of the video sequence (**4, QUERY FORMULATION,** last three para.),

the motions represented in the descriptor comprising, for the one frame and for the series, at least one of the following basic motion types: fixed, panning, tracking, tilting, booming, zooming, dollying, and rolling, or any combination of two or more of these types (Fig. 1), wherein the descriptor being further configured such that each of the motions represented, except fixed, is oriented and subdivided, in the representation, into two components that stand for two different directions, magnitudes of the respective components each corresponding to a respective predefined size of a displacement (Fig. 1, panning, arrow left (one direction) or arrow right (another direction); booming, arrow in (one direction) or arrow out (another direction).

Ahanger et al does not particularly disclose the (displacement) size being corresponding values of a dependent variable that defines a histogram for the descriptor.

However, Ahanger et al further discloses representations for motion and color histogram for identifying an object (page 5, lines 5-7).

Furthermore, Altunbasak et al teaches calculating motion histograms based on camera operations (Fig. 11, 100; col. 10, lines 15-26).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a descriptor as taught by Ahanger et al to incorporate the concept as taught by Altunbasak et al so that the (displacement) size(s) are corresponding values of a dependent variable that defines a histogram for the descriptor as an efficient tool to identify such camera operations so that an user can retrieve desired/selected video frames that includes a query video object.

Regarding claim 5, Ahanger et al discloses the description being hierarchical, by means of a representation of the motion handles at any temporal granularity (Fig. 2).

Regarding claim 7, Ahanger et al discloses an image retrieval system comprising a camera (Fig. 1), a video indexing device and a database (**1 INTRODUCTION**, 1st Para., 3rd Para., a data base system), a GUI for carrying out a requested retrieval from the data base, and a video monitor for displaying the retrieved information (**4, QUERY FORMULATION**), and an indexing operation in the video indexing device based on categorization resulting from the use of the descriptor (**4, QUERY FORMULATION**, last two para.).

Regarding claims 8 and 11, Altunbasak et al teaches the histogram having an independent variable with values that form pairs corresponding to a different one of the motion types (col. 10, lines 15-26).

Regarding claims 13 and 21, Ahanger et al discloses entering the descriptor, and the retrieval being based on the descriptor serving as a query into the database (**4, QUERY FORMULATION**, last three para.).

Regarding claims 14-15, 16, and 17, Ahanger et al discloses the descriptor, upon being utilized as a query into the database, includes a predetermined temporal window of the video data (total number of frames) (page 6, lines 3-11).

Therefore, it would have been obvious to derive a formula $(n_o, n_o + N)$, wherein N is the total number of frames of the window.

Furthermore, Ahanger et al discloses the flexibility pertaining to a size of a motion query (page 6, lines 3-11).

Therefore, it would have been obvious to be flexible for a size of a window, which corresponds to a size of a descriptor (query), so that, in case of one frame, the window size obviously is one, and in the case of more than one, the window size obviously corresponds to greater than one.

Regarding claim 18, Ahanger et al discloses indexing based on a categorization that affords querying of the database by the descriptor (**4, QUERY FORMULATION**, last three para.), wherein the database stores data resulting from the categorization (**1 INTRODUCTION**, 1st Para., 3rd Para., a data base system).

Regarding claims 19-20, Ahanger et al discloses formatting comprising a starting point and an ending point of the video sequence, a temporal presence of each

motion types, and a speed magnitude for each of the motion types (**4, QUERY FORMULATION,** last three para.).

Furthermore, since the motion in a typical video represents moving (temporal) of the frames of the video sequences, it would have been quite obvious to associate successive time periods (temporal) so as to represent a complete motion for query (descriptor) that may last up to any number of total frames.

6.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahanger et al and Altunbasak et al as applied to claim 1 above, and further in view of Miyatake et al (5,267,034).

Regarding claim 2, the combination of Ahanger et al and Altunbasak et al does not particularly disclose describing speed in the descriptor by choosing a common unit to represent it.

However, Miyatake et al teaches a motion type having its own speed described in an unified way by choosing a common unit to represent it (col. 8, lines 17-45).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a descriptor as taught by Ahanger et al to incorporate the concept as taught by Miyatake et al so as to accurately measure/calculate and calibrate the speed of motion types for analysis/review.

7.   Claims 3-4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahanger et al, Altunbasak et al, and Miyatake et al as applied to claim 2 above, and further in view of Jeannin (5,929,940).

Regarding claim 3, the combination of Ahanger et al, Altunbasak et al, and Miyatake et al does not particularly disclose each motion type being represented by a pixel-displacement value working at the half pixel accuracy.

However, Jeannin teaches a conventional method of motion estimation comprising a motion type being represented by a pixel-displacement value working at the half pixel accuracy (Fig. 2, col. 8, lines 23-27).

Furthermore, half-pixel motion vector is frequently used in current standard for a predicted motion system, such as in MPEG and/or H.263.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a descriptor as taught by Ahanger et al to incorporate the concept as taught by Jeannin as an efficient method to estimate the motion vectors between two pixels.

Regarding claim 4, the Examiner takes official notice that it is considered quite obvious and well known in the art to simply round the speed (motion vector) to the closest half-pixel value, and multiply by 2 in order to obtain an integer value, thereby working with simple (non-complex) numbers.

Furthermore, the concept of rounding and multiplying by 2 of a value is unquestionably well known through an elementary mathematical textbook(s).

Regarding claim 16, Ahanger et al discloses querying the N frames of the database in response to the descriptor (page 6, lines 3-11).

Allowable Subject Matter

8.   Claims 6, 9, and 12 are objected to as being dependent upon a rejected base claim 1, but would be allowable: if any one of claims 6, 9, 12 is rewritten in independent form including all of the limitations of the base claim 1 and any intervening claims.

Dependent claims 6, 9, and 12 recite novel features as discussed in the office action as filed on 12/31/03, wherein the art of records fail to anticipate or make obvious the novel features.

Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

Conclusion

9.   Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Shawn S An whose telephone number is 571-272-7324.

10.   Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
Status information for unpublished applications is available through Private PAIR only.
For more information about the PAIR system, see http://pair-direct.uspto.gov. Should
you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).

SHAWN AN
PRIMARY EXAMINER

4/26/05